

Status report for BBC calibrations at Run7

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What's done after the end of run7

1. calculate pedestal

- We have replaced 4 Adc channels in May 23.
- Pedestal is obtained by threshold scan data (taken in mid June).
- We got correct pedestal value by using threshold scan data

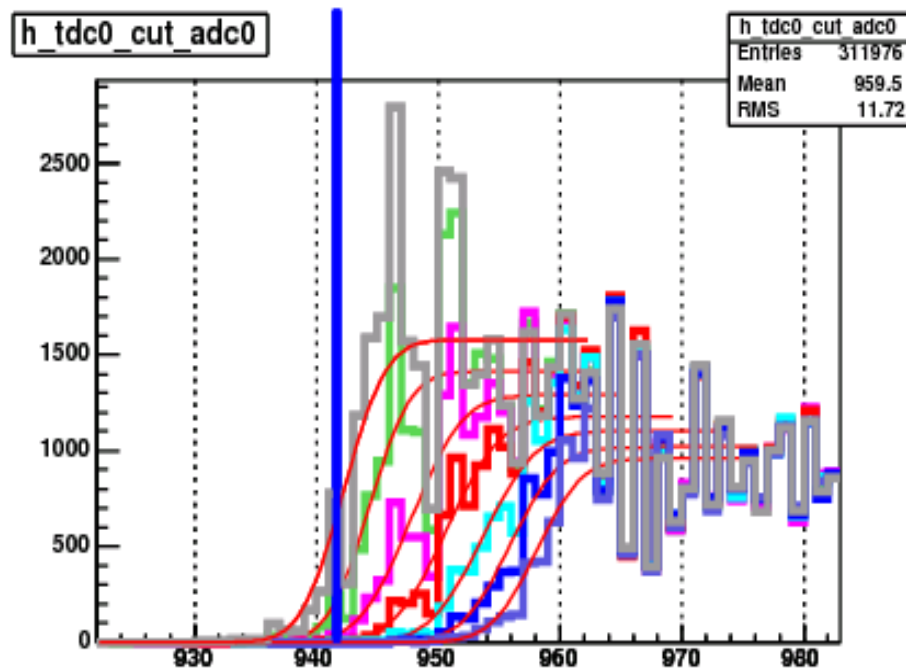
2. check the stability of PMT gains

- We examined PMT gain fluctuations during run7.

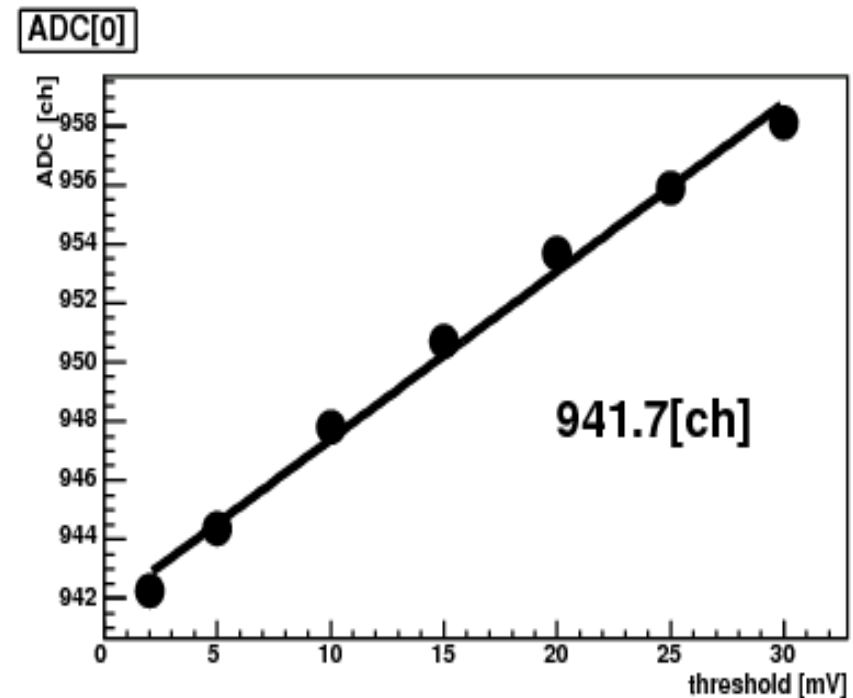
3. deal with wrong HV setting runs

- Run 229307~229313(Magnet ON run) was taken at Magnet OFF HV setting.
- Run 238530, 238971 (Magnet OFF run) was taken at Magnet ON HV setting.

1. pedestal calculations



Blue line : pedestal



- Threshold scan data provides Adc edge for each threshold.
- Pedestals are obtained by extrapolating Adc value corresponding to each threshold.

2. PMT gain stability during run7

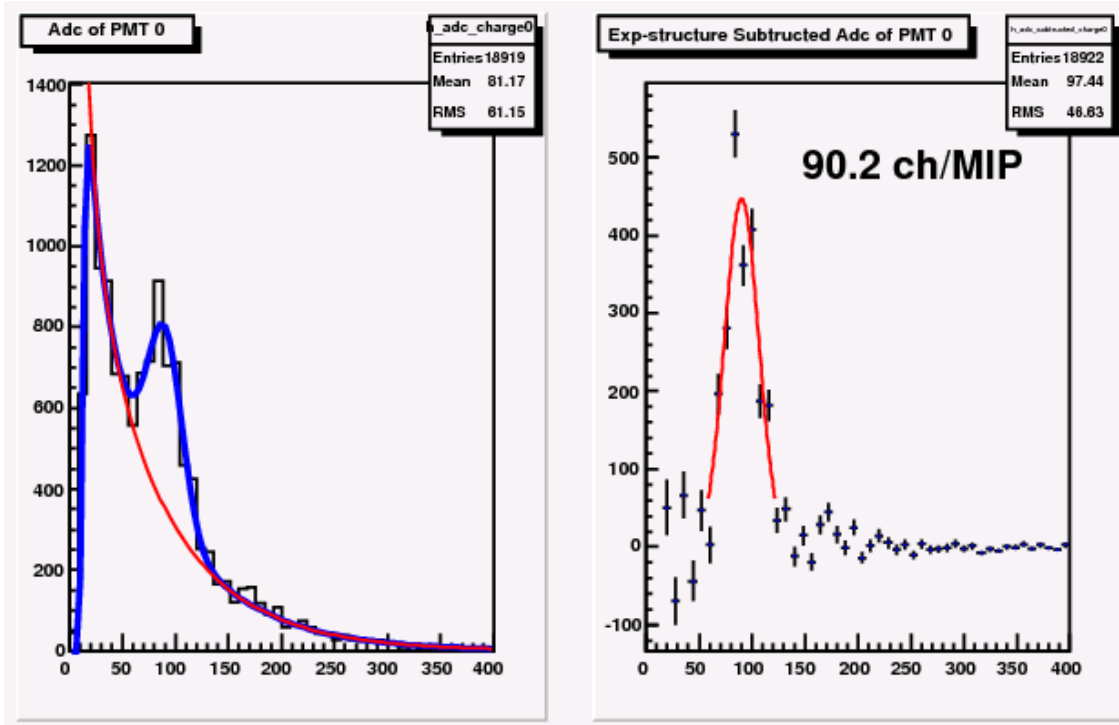


Fig.1 Adc - pedestal

Fig.2 Adc – pedestal
after subtracted background

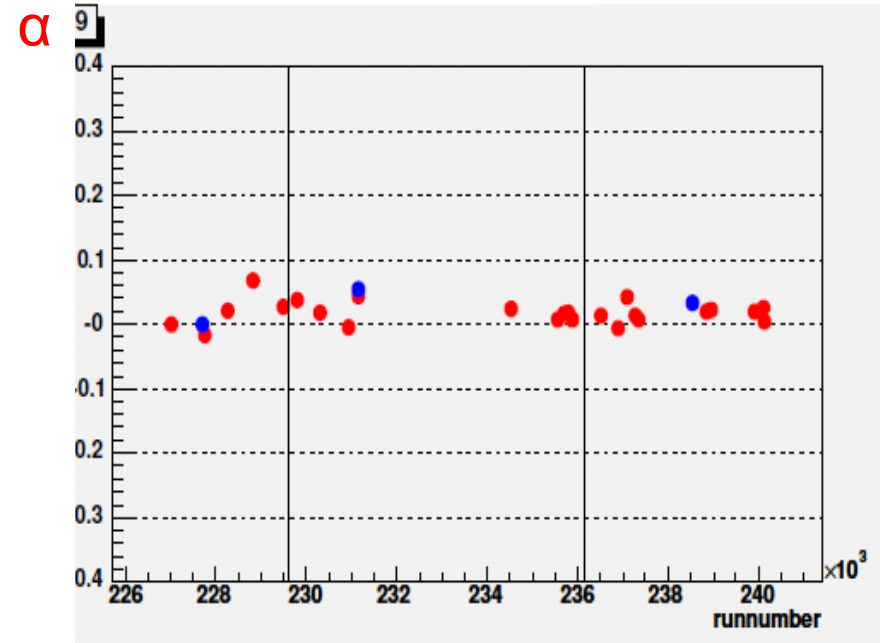


Fig.3. Run dependence
of PMT gain ratio α

$$\alpha = (\text{MIP for each run} / \text{MIP at the beginning of run7}) - 1$$

w.r.t Fig. 3

- Each point is obtained by MIP peak position of each run.
- The vertical axis α is the ratio between MIP peak position for each run and that of the beginning of run7.

2. PMT gain stability during run7

Initial constants for Magnet ON

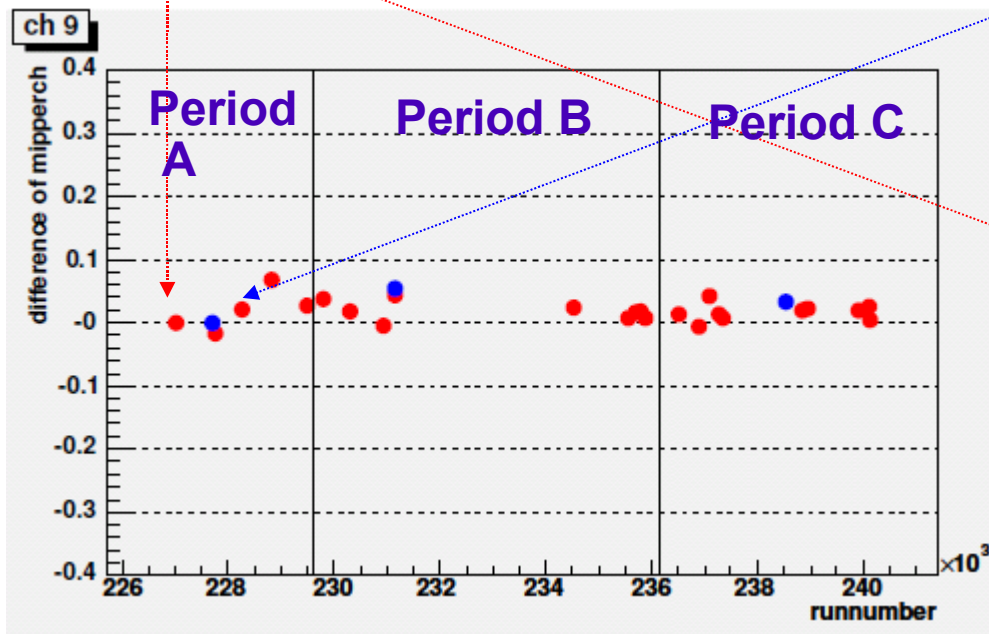


Fig1. Channel 9 (typical case)

Initial constants for Magnet OFF

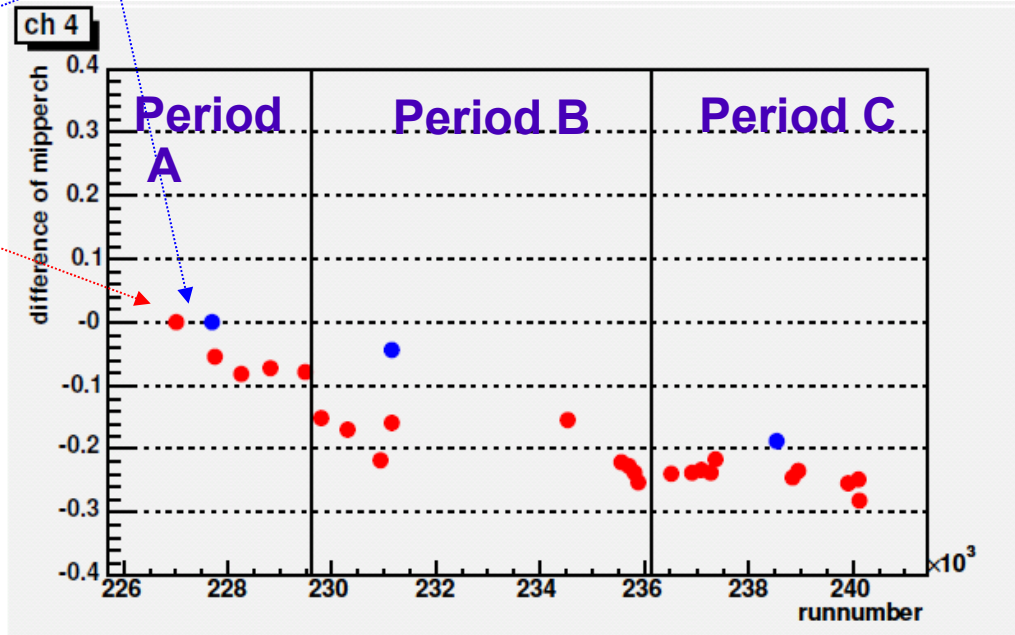


Fig2. Channel 4 (Fluctuating case)

Red point : Run at magnetic field ON
Blue point : Run at magnetic field OFF

- ◆ We applied constants divided into three periods
- ◆ These constants were uploaded into the data base.
 - Magnet ON is applied as ver 4002
 - Magnet OFF is applied as ver 4001

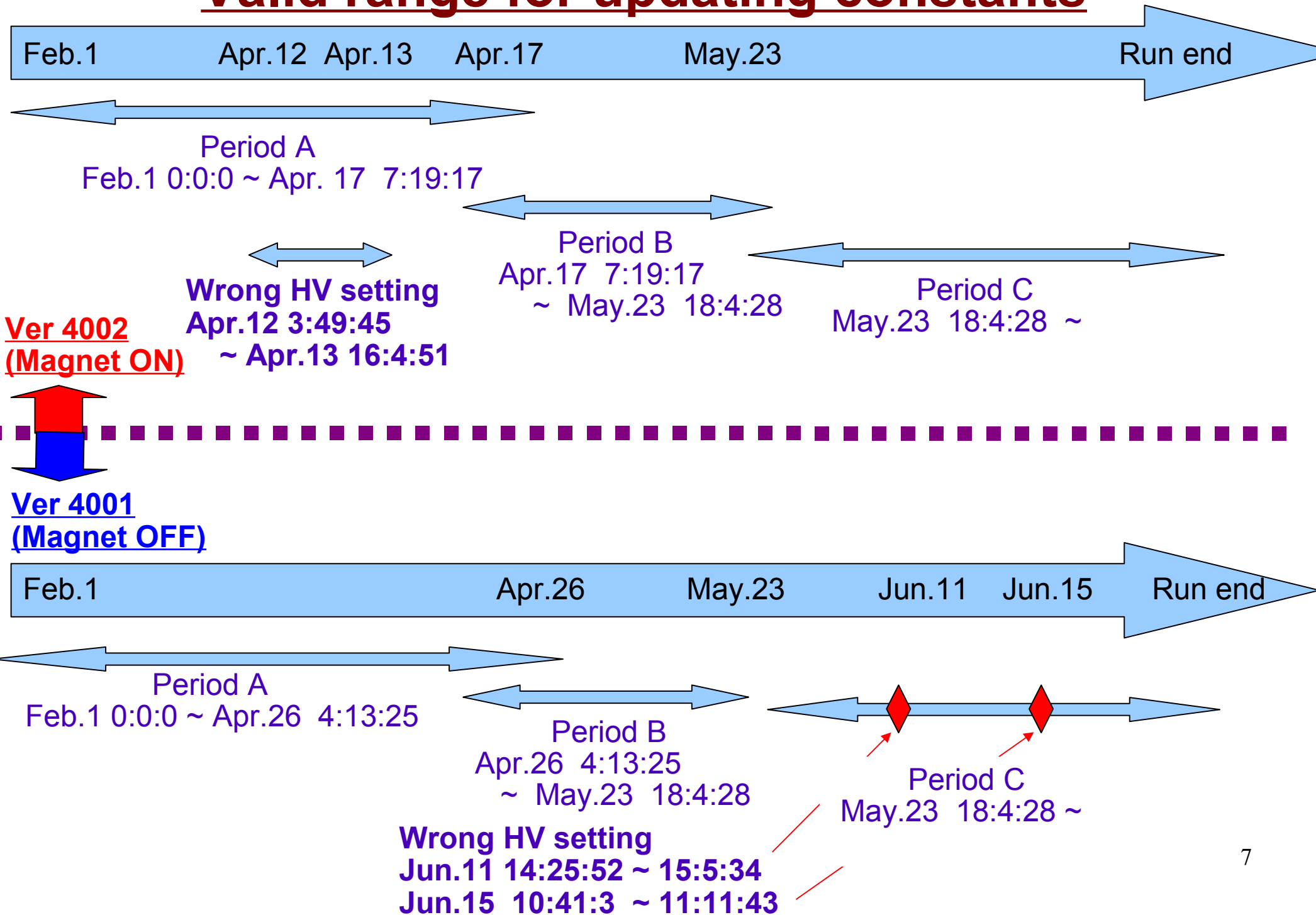
3. deal with wrong HV setting runs

- Run 229307~229313(Magnet ON run) was taken at Magnet OFF HV setting.
- Run 238530, 238971 (Magnet OFF run) was taken at Magnet ON HV setting.

⇒ We did calibrations for these runs.

These constants were also updated into the data base.

Valid range for updating constants



Summary

- We have finalized BBC calibrations at run7
 - get correct pedestal for run after replacement of 4 Adc channels in May. 23.
 - investigate PMT gain fluctuations and applied proper constants.
- We have updated constants into the data base in Aug 5.
 - ver 4002 is for Magnet ON run
 - ver 4001 is for Magnet OFF run